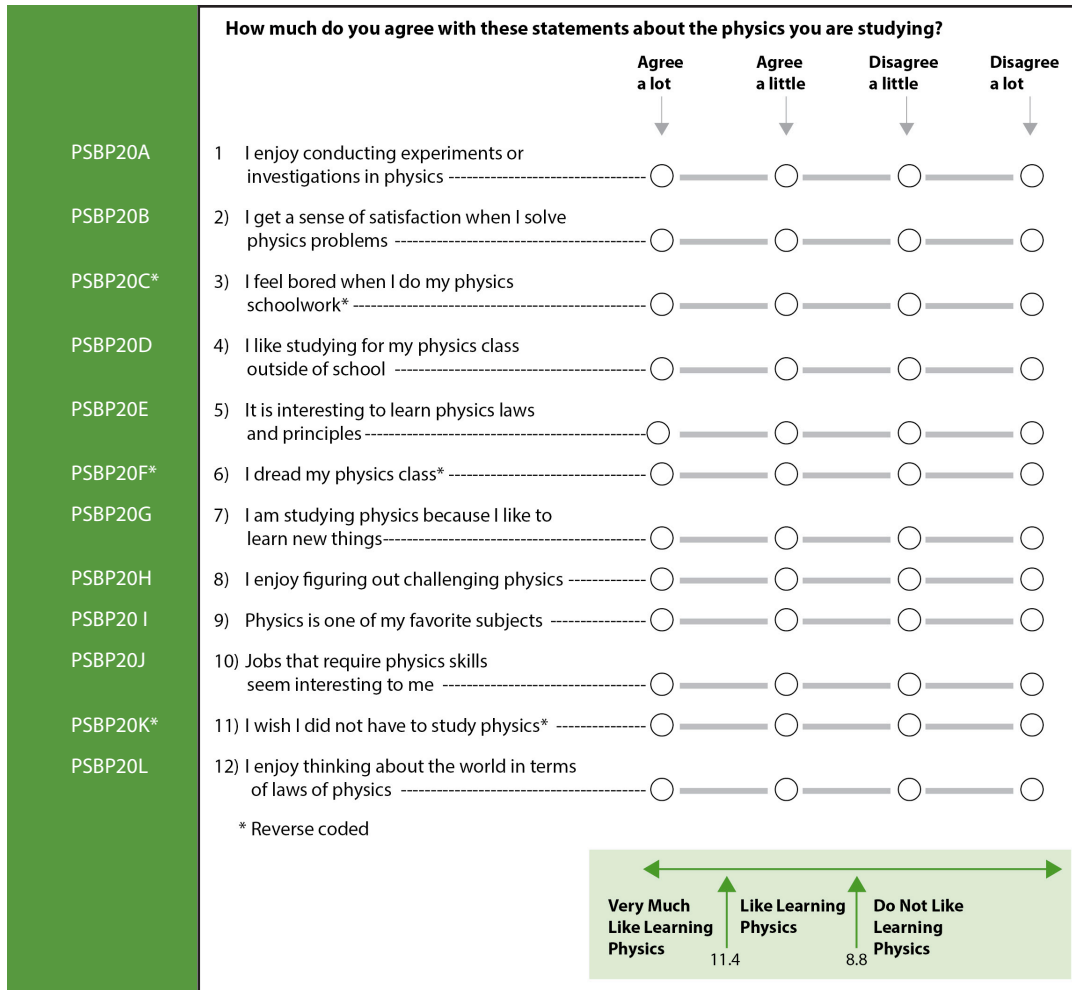


# Students Like Learning Physics Scale

The Students Like Learning Physics (SLP) scale was created based on students' degree of agreement with the twelve statements described below.

## Items in the TIMSS Advanced 2015 Students Like Learning Physics Scale



**Item Parameters for the TIMSS Advanced 2015 Students Like Learning Physics Scale, Physics**

Item	delta	tau_1	tau_2	tau_3	Infit
PSBP20A	-0.51423	-1.07025	-0.41990	1.49015	1.15
PSBP20B	-0.90801	-0.86799	-0.43946	1.30745	1.10
PSBP20C*	0.51315	-1.69256	-0.14245	1.83501	1.23
PSBP20D	1.03682	-1.72677	-0.08320	1.80997	1.11
PSBP20E	-0.21380	-1.38699	-0.26425	1.65124	0.90
PSBP20F*	-0.39443	-1.02035	0.04349	0.97686	1.82
PSBP20G	-0.18466	-1.35598	-0.31080	1.66678	0.81
PSBP20H	0.04092	-1.36190	-0.07935	1.44125	0.85
PSBP20I	0.54534	-0.86829	-0.06458	0.93287	0.75
PSBP20J	0.17389	-0.97760	-0.33432	1.31192	0.94
PSBP20K*	-0.07291	-0.60736	-0.22268	0.83004	1.02
PSBP20L	-0.02208	-1.18389	-0.23501	1.41890	1.02

\* Reverse coded

**Scale Transformation Constants for the TIMSS Advanced 2015 Students Like Learning Physics Scale, Physics**

Scale Transformation Constants

$$A = 8.81822$$

$$B = 1.464843$$

$$\text{Transformed Scale Score} = 8.81822 + 1.464843 \cdot \text{Logit Scale Score}$$

**Equivalence Table of the Raw Score and the Transformed Scale Score  
for the TIMSS Advanced 2015 Students Like Learning Physics Scale,  
Physics**

Raw Score	Transformed Scale Score	Cutpoint
0	2.29834	
1	3.92594	
2	4.70005	
3	5.22580	
4	5.63169	
5	5.97016	
6	6.26389	
7	6.52678	
8	6.76750	
9	6.99121	
10	7.20367	
11	7.40630	
12	7.60136	
13	7.79069	
14	7.97591	
15	8.15835	
16	8.33926	
17	8.51979	
18	8.70102	8.8
19	8.88404	
20	9.06991	
21	9.25980	
22	9.45491	
23	9.65655	
24	9.86615	
25	10.08468	
26	10.31566	
27	10.56116	
28	10.82464	
29	11.11077	
30	11.42601	11.4
31	11.77922	
32	12.18651	
33	12.67364	
34	13.29295	
35	14.17455	
36	15.92718	

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015



**Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS Advanced 2015 Students Like Learning Physics Scale, Physics**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item											
			PSBP20A	PSBP20B	PSBP20C*	PSBP20D	PSBP20E	PSBP20F*	PSBP20G	PSBP20H	PSBP20I	PSBP20J	PSBP20K*	PSBP20L
France	0.89	47	0.59	0.50	0.63	0.70	0.78	0.30	0.78	0.75	0.83	0.69	0.80	0.66
Italy	0.90	49	0.62	0.54	0.60	0.78	0.78	0.33	0.81	0.79	0.82	0.77	0.75	0.64
Lebanon	0.83	39	0.67	0.59	0.34	0.48	0.70	0.16	0.75	0.72	0.81	0.73	0.51	0.67
Norway	0.89	47	0.44	0.35	0.69	0.67	0.78	0.44	0.78	0.79	0.85	0.74	0.77	0.68
Portugal	0.89	47	0.58	0.67	0.61	0.70	0.76	0.40	0.78	0.78	0.82	0.68	0.73	0.66
Russian Federation	0.92	53	0.53	0.78	0.63	0.76	0.82	0.38	0.79	0.81	0.85	0.82	0.67	0.70
Slovenia	0.87	41	0.50	0.59	0.48	0.57	0.70	0.49	0.72	0.77	0.80	0.73	0.59	0.64
Sweden	0.91	51	0.52	0.61	0.69	0.72	0.79	0.51	0.79	0.81	0.84	0.74	0.78	0.69
United States	0.92	52	0.63	0.61	0.55	0.66	0.82	0.63	0.78	0.80	0.85	0.75	0.75	0.78
International Avg.	0.89	47	0.56	0.58	0.58	0.67	0.77	0.41	0.78	0.78	0.83	0.74	0.71	0.68

\* Reverse coded

**Relationship Between the TIMSS Advanced 2015 Students Like Learning Physics Scale, and TIMSS Advanced 2015 Physics Achievement**

Country	Pearson's Correlation with Physics Achievement		Variance in Physics Achievement Accounted for by Difference Between Regions of the Scale ( $\eta^2$ )
	(r)	(r <sup>2</sup> )	
France	0.46	0.22	0.18
Italy	0.39	0.15	0.13
Lebanon	0.22	0.05	0.04
Norway	0.50	0.25	0.22
Portugal	0.43	0.18	0.17
Russian Federation	0.38	0.15	0.13
Slovenia	0.44	0.20	0.15
Sweden	0.44	0.20	0.16
United States	0.41	0.17	0.16
International Median	0.43	0.18	0.16

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015